

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:) Group Art Unit: 2815
Shunpei YAMAZAKI et al.) Examiner: Landau, Matthew C.
Application No.: 08/520,079) Confirmation No.: 1321
Filed: August 28, 1995)
For: SEMICONDUCTOR CIRCUIT FOR)
ELECTRO-OPTICAL DEVICE AND)
METHOD FOR MANUFACTURING)
THE SAME) Date: November 30, 2007

REQUEST FOR RECONSIDERATION

MAIL STOP AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action mailed August 31, 2007, Applicants respectfully request reconsideration and allowance of the above-identified application in view of the following remarks.

Pending claims 73-116, 123-141, and 143-155 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang et al. (U.S. Patent No. 5,563,426). However, Applicants respectfully submit that Zhang fails to disclose, suggestion, or render obvious the invention recited in claims 73-116, 123-141, and 143-155.

For example, at page 4, lines 1-11 of the Office Action, the Examiner admits that Zhang does not specifically teach that the island includes a nickel at a concentration of 5×10^{17} cm⁻³ or less. To overcome this clear deficiency of Zhang, the Examiner asserts that the claim is prima facie obvious without showing that the claimed range achieves unexpected results relative to the prior art range.

The Examiner's attention is respectfully direct to page 24, line 34, to page 25, line 4, and page 27, lines 9-12, of the original specification, which provides that a thin film transistor having fewer defects and no grain boundary in a crystallized semiconductor film can be manufactured by using nickel. Thus, the thin film transistor including nickel have high mobility and is capable of passing a high ON current. However, as described at page 27, lines 16-18 of the original specification, in the case of containing a great deal of nickel in the crystallized semiconductor film, the nickel adversely affects characteristics of the thin film transistor because it acts as a trap center for carriers and causes an increase of an OFF current. Therefore, it is important to adjust the final concentration of nickel in the crystallized semiconductor film.

Further, the original specification discloses, at page 10, lines 16-22, that "researches by the inventor have revealed that the concentration of at least one element must be 1×10^{16} cm⁻³ in order that crystallization proceeds in thermal equilibrium. It has been also revealed that if the concentration is 5×10^{19} cm⁻³ or more, the properties of the semiconductor material is deteriorated." Thus, it is necessary to suppress the starting concentration of nickel less than 5×10^{19} cm⁻³ in order to manufacture a thin film transistor having fewer defects and no grain boundary.

Accordingly, the claimed feature of "*wherein said crystalline semiconductor island includes a nickel at a concentration of 5×10^{17} cm⁻³ or less*" in each of independent claims 73, 80, 87, 93, 99, 105, 111, 123 and 129 is neither taught nor rendered obvious in view of Zhang, and Applicants respectfully submit that this claim limitation is meaningful and that the claimed range can produce new and unexpected results from the results of Zhang, which, in contrast, uses a great deal of nickel at 5×10^{19} cm⁻³ or more as a starting concentration of nickel. Zhang further discloses a final concentration in the crystallized semiconductor film of between 5×10^{19} cm⁻³ and 1×10^{22} cm⁻³, as mentioned in Applicants' prior response filed June 28, 2007.

Therefore, Applicants respectfully submit that Zhang fails to disclose, suggest, or render obvious at least the claimed feature that the "crystalline semiconductor island includes a nickel at a concentration of 5×10^{17} cm⁻³ or less", as recited in each of independent claims 73, 80, 87, 93, 99, 105, 111, 123 and 129.

Furthermore, the spin density of the crystallized semiconductor film recited in claim 73 is different from that of the crystallized semiconductor film in Zhang '426 because characteristics of the crystallized semiconductor film are affected by a starting concentration of nickel.

For at least the above reasons, Applicants respectfully submit that Zhang fails to disclose, suggestion, or render obvious the invention recited in claims 73-116, 123-141, and 143-155. Therefore, Applicants respectfully request that the rejection of claims 73-116, 123-141, and 143-155 under 35 U.S.C. § 103(a) in view of Zhang be reconsidered and withdrawn.

In view of the foregoing, it is submitted that the present application is in condition for allowance and a notice to that effect is respectfully requested. If, however, the Examiner deems that any issue remains after considering this response, the Examiner is invited to contact the undersigned attorney to expedite the prosecution and engage in a joint effort to work out a mutually satisfactory solution.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

Date: November 29, 2007

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